

DOE Could Better Assess Market Needs and Respond to Risks

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A report to congressional requesters

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What GAO Found

The Office of Isotope Research and Development and Production (IRP), within the Department of Energy's (DOE) Office of Science, produced, sold, and distributed 265 isotopes during fiscal years 2020 through 2025. Many of these isotopes are critical to medical diagnosis and treatment, national security, industrial processes and manufacturing, and quantum science. IRP made over 7,700 isotope shipments, most of which were for medical purposes.

Department of Energy Isotope Production Facility



Source: GAO photo of a Department of Energy isotope production facility. | GAO-26-108053

IRP assesses market needs for isotopes on a case-by-case basis and manually tracks interactions with industry, customers, and others. However, IRP has not systematically assessed needs or aligned production activities to address those needs. A university production site representative told GAO that clearer market analysis or forecasting would have enabled earlier production preparations for a critical isotope with imminent supply failure. Without a mechanism to systematically assess needs proactively and actions to address isotopes in short supply, IRP may be too slow to respond to customers, who could be forced to rely on sensitive countries to meet their needs or face supply problems.

IRP gathers information from industry and others to assess risks to isotope production and supplies, but IRP has not developed timely actions to mitigate such risks. According to IRP data, isotopes with market disruptions decreased from 40 in 2023 to 25 in 2025, but the U.S. continues to rely on sensitive countries for a majority of those remaining isotopes. Without mitigating risks, IRP may be unable to respond to emerging risks in a timely manner. This could lead to disruptions in isotope production and supplies, which have real-world implications for cancer patients, national security, and domestic industries.

Why GAO Did This Study

IRP is the only domestic supplier for many of the isotopes it sells. Many isotopes are rare or are too expensive or technically difficult for private industry to produce profitably, making IRP critical for producing them. Demand for isotopes is growing, and many of these isotopes are in short supply or represent a supply chain risk for U.S. industries.

GAO was asked to review IRP's management of isotopes. This report examines (1) which isotopes IRP produced, sold, and distributed during fiscal years 2020 through 2025; (2) the extent to which IRP has assessed isotope market needs and aligned its activities to meet them; and (3) the extent to which IRP has assessed risks affecting the supply of selected isotopes and taken action to mitigate those risks.

GAO analyzed agency documents and data on isotope revenues, costs, sales, and shipments. GAO also reviewed documentation on IRP's assessment of demand and risks to isotope production and supply chains. GAO interviewed IRP officials and a nongeneralizable sample of entities that received isotopes from IRP and represented the medical, industrial, and research and development sectors. GAO also visited isotope production facilities and interviewed officials at Oak Ridge National Laboratory in Tennessee.

What GAO Recommends

GAO is making four recommendations, including that DOE's Office of Science (1) develop a mechanism to systematically assess demand and develop actions to address isotopes in short supply, and (2) mitigate risks to isotope production and supplies. The Office of Science agreed with the recommendations.